

A REPTILE AND AMPHIBIAN MISCELLANY.

BY

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PART I

(*With 9 plates and 3 text-figures.*)

INTRODUCTION.

This paper is an attempt at grouping together in a presentable form many of my notes and field observations on Reptiles and Amphibians. It covers a period of many years of intermittent field study. Much of the information relates to animals met with in the vicinity of the islands of Bombay and Salsette, but observations made further afield have also been incorporated. Whenever possible, an endeavour has been made to record the findings photographically.

HIBERNATION AND AESTIVATION.

It is well known that the temperature of reptiles varies with the temperature of the atmosphere and also its humidity. The fluctuation of the climatic conditions increases or retards activity; thus it is that we find that certain animals 'disappear' during certain seasons and 'reappear' at others. In the case of lizards, for example, heat is responsible for greater activity, except when too severe; while cold on the other hand, retards their activity and forces them to seek shelter. Amphibious animals, such as crocodiles, turtles and frogs, are less influenced by atmospheric changes, and are largely dependent on water supply; but land tortoises react in the same way as lizards to atmospheric conditions. Frogs are dependant on water supply and humidity of the air, hence it is we find that most frogs aestivate during the dry weather but some move about during this period under the cover of darkness when evaporation is low. Frogs can stand a good deal more cold, provided it is not dry, than lizards.

REPRODUCTIVE ORGANS.

In the female, a pair of ovaries is present and both become functional only during the breeding season. The mass of embryonic eggs, when visible, appear as small creamy, spherical bodies situated near the middle of the body on either side of the vertebral column. The number of ova varies considerably in the different families and in some instances with the species, from but a few in the Hemidactyls, to several hundred in many of the Ranids. In the breeding season the ova exhibit all stages of development, from the microscopical to the mature. The ova that do not mature in any-

one season undergo a process of resorption as in the case of birds, and the whole genital system undergoes complete reduction, often making it really difficult to sex an animal from a casual survey.

During the breeding season, the whole oviduct is in a state of *hypertrophic turgescence*, i.e. it is much enlarged. This condition is clearly seen in the photograph illustrating the difference between the breeding and non-breeding condition of the ovaries in the Marsh Crocodile (Pl. II). The genitals of immature, non-breeding animals also show a certain amount of enlargement during the general breeding season, but not, by any means, to the same extent as those of breeding animals. This is well illustrated in the photograph of the Bull-Frogs (*R. tigrina*) which appears in part II of this paper. In the non-breeding period the genitals are so reduced, that in many cases, it is difficult indeed to sex a specimen.

Like the ovaries the male organs are paired and both become functional during the breeding season. The seminal ducts lead into the cloaca. In crocodiles, turtles and tortoises there is a single extrusible copulatory organ; in lizards and snakes it is a paired process; while in frogs and toads no such organ exists. Fertilization is external in frogs and toads and generally takes place in water.

ORDER: LORICATA.

FAMILY: *Crocodylidae*.

Crocodylus palustris Lesson. The Marsh Crocodile or Muggar.

The Marsh Crocodile (*C. palustris*) I have met in several parts of its range: in Sind, along the banks of the Indus River and canals, and also in some of the lakes; in the United Provinces, in the marshes of the Gola (Kheri Dist.); in Rajputana, along the bed of the Banas River; and in the Bombay Presidency—Tapti River, Salsette Island, and the Kala Nuddi, Kanara. I have also visited the famous 'Muggar Pir', near Karachi, where the animals are kept in a small area enclosed by a wall.

In spite of its size, the muggar is an extremely shy animal whose senses of hearing, sight and smell are highly developed; it is difficult of approach, and only a 'sleeping' individual may sometimes be taken by surprise. Though, generally speaking, the muggar is an inhabitant of sweetwater, in the lakes near Tatta, Sind, it is found in water so saline as to be undrinkable. The hillsides bordering some of these lakes show distinct traces of 'crocodile paths' leading up from the water. I followed up some of these; the ascent was often steep, with a lot of loose sand and stones. The 'paths' invariably terminated in a large deep hole in the hillside, evidently the work of a crocodile. The entrance was often two feet or more in diameter. The burrow descended for some 8-15 feet terminating in a large chamber, sufficiently wide to allow the animal to turn round and lie comfortably. In one of the burrows a ten-foot crocodile was at home! Though an unsporting thing to do, I shot the beast. Being June, the usual breeding season, I examined the burrow for eggs, but there were none. It would appear that these burrows are just retreats in which the animals spend the hottest part of the day.

When hit by the first bullet, the brute lashed out furiously with its tail and created an awful dust within the burrow, at the same time 'roaring' loudly. The noise can only be compared to the roll of a big-drum. Apart from this sound, muggar hiss loudly and make a clapping noise by snapping the jaws together. When cornered they face the enemy with open mouth, the tail ready to strike, and the snapping is often repeated. When attacking, they may jump slightly forward (more true of the young) with the mouth open in an endeavour to bite, or they may bring the tail round with a powerful sweep towards the head, and the head moved inwards towards the tail. When an object is gripped between the powerful jaws it is 'dusted' by vigorous shaking of the head.

While sailing down the Indus towards the sea from Baggarh, I often saw large numbers of these huge reptiles lying on the muddy banks, and presenting the appearance of a timber curing yard; there must have been well over a hundred in some places, basking in the sun, motionless, yet ever ready to plunge into the river on the slightest suspicion of danger. They were seen at all hours of the day. Once I had the opportunity of seeing one make a meal. As our boat passed close to the bank, I noticed the water was much disturbed in the shallows. Suddenly, out jumped a fish about two feet long on to the bank. No sooner had this happened, than a crocodile broke the surface and followed the fish to the bank, caught it, swallowed it—head first, and then disappeared into the river.

In the Gola, Kheri District, crocodiles are numerous in the swamps. The marshes, during the cold season, form large expanses of water surrounded by tall grass, often twelve feet or more high. On the banks crocodiles make definite paths to the spots where they lie up. In such places one may sometimes surprise a 'crock'. Its first impulse on the slightest sign of danger is to get back into the water and disappear, only to show the top of its head some distance off as it drifts gently away without causing a ripple. The marshes are also the home of Swamp Deer and Pythons; and during the winter months they are visited by hundreds of duck and other wild fowl. In this area the crocodiles probably feed largely on wild fowl and Swamp Deer.

In the Banas river (Rajputana), which is dry for several months of the year soon after the rains, the crocodiles tenant some of the large and deep pools left along the bed of the river and some of the permanent pools in the neighbourhood. During floods they travel a long way up and down stream.

The *Fauna*¹, with regard to the basking of crocodiles states: 'They do not leave the water until the sun is well up, and return to it before the sun has set.' My experience is that they come out much at night. I have shot them at all hours of the night on banks with the aid of a torch. In the Bombay Municipal lakes of Tulsi, Vihar and Powai on the island of Salsette, crocodiles are frequently seen. In these areas I have found them lying upon the banks both during the day and during the night.

¹ *F. B. Ind. (Reptilia)*, vol. i, p. 36, 1931, 2nd edn.

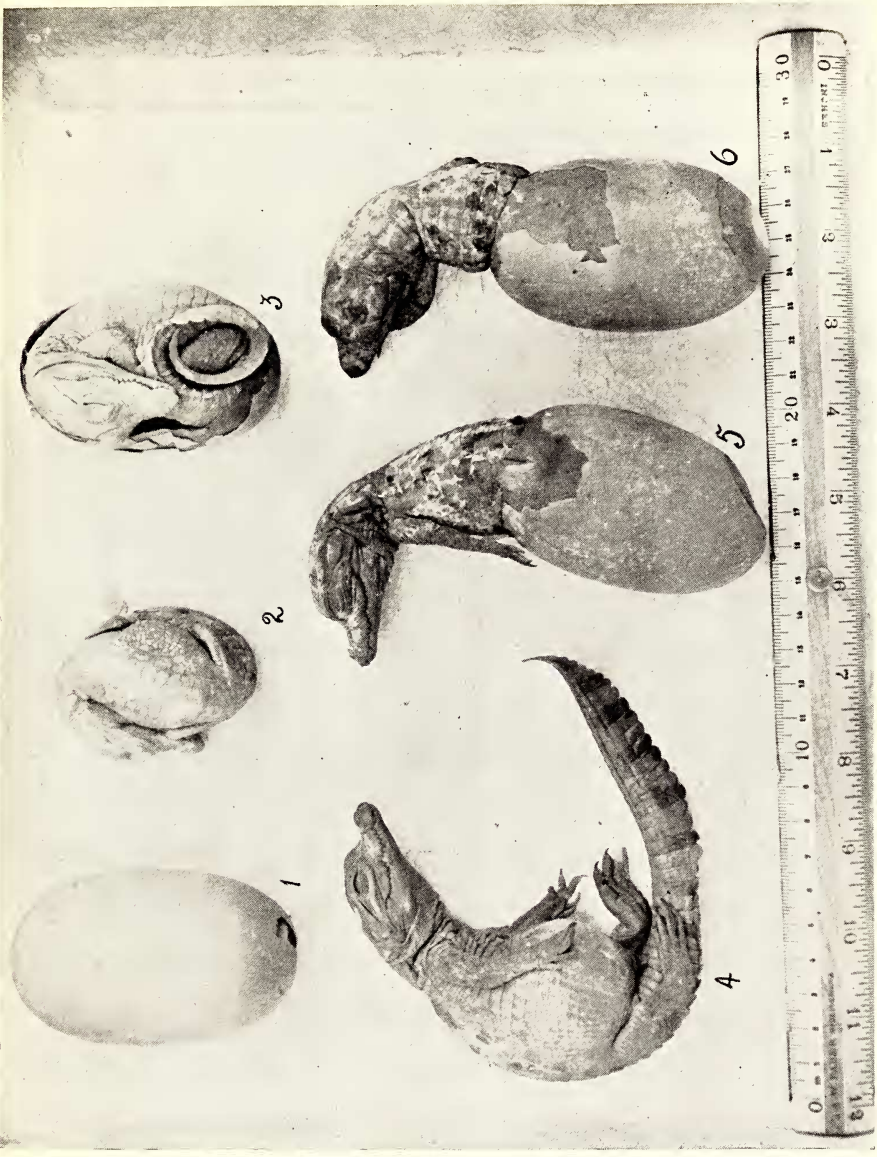
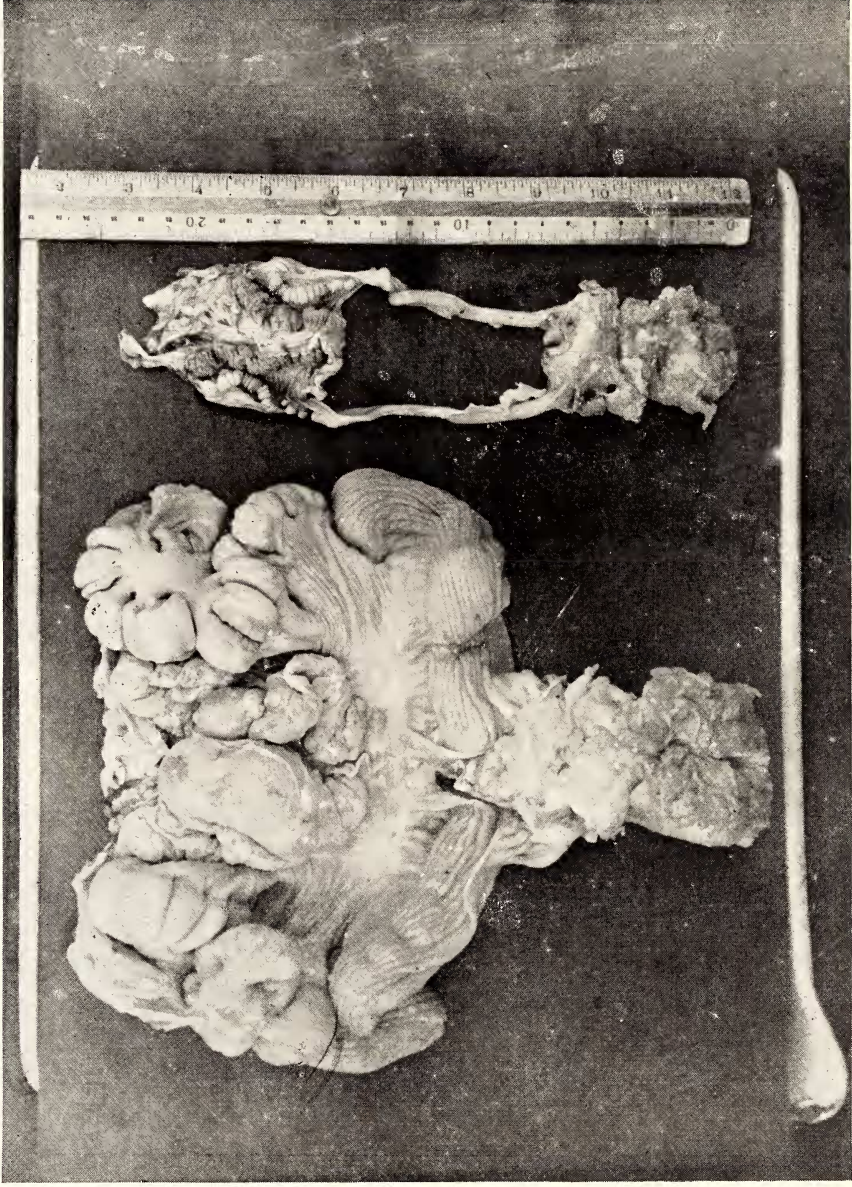


Photo: C. McCann.

- Crocodilus palustris* Lesson.
 1, 4, 5, 6. Chanda specimens of the same clutch.
 2. Tulsi Lake.
 3. (?)



Female genital systems of the Marsh Crocodile (*Crocodylus palustris* Lesson), showing the difference between active and non-active genitals at the breeding season.
Photo : C. McCann.

This crocodile is a very nasty-tempered reptile; even after weeks and months of captivity it still remains savage. All attempts to 'tame' them generally resulted in a lacerated finger or hand, though they recognised well the feeding time and the food and readily came for it, but any attempt at familiarity was immediately resented. When in water the food is easily caught and swallowed, but picking food off the floor is a difficult process as the meat has to be seized with the side of the jaws.

Young.—Recently I had the opportunity of examining four preserved specimens of hatching crocodiles sent in to the Society by the Divisional Forest Officer of North Chanda, Central Provinces. Two of the four specimens were half out of the egg, one out, and one still in the egg. Two of the eggs measured 79×50 mm. and 80×50 mm. respectively, and the hatchling 294 mm. from tip of snout to tip of tail (over the back). The same animal measured with dividers, from tip of snout to vent 118 mm., from vent to tip of tail 132 mm. (=250 mm.). The latter measurement agrees with that given in the *Fauna* (p. 48). Besides the Chanda specimens there are a few small specimens in the society's collection; of these only one has still its egg-tooth. This specimen measured 283 mm. over the back. All the Chanda specimens exhibit the egg-tooth clearly. The egg-tooth is a small wedge-shaped calcareous point attached to the rostrum shield. The egg is invariably ruptured at one of its poles.

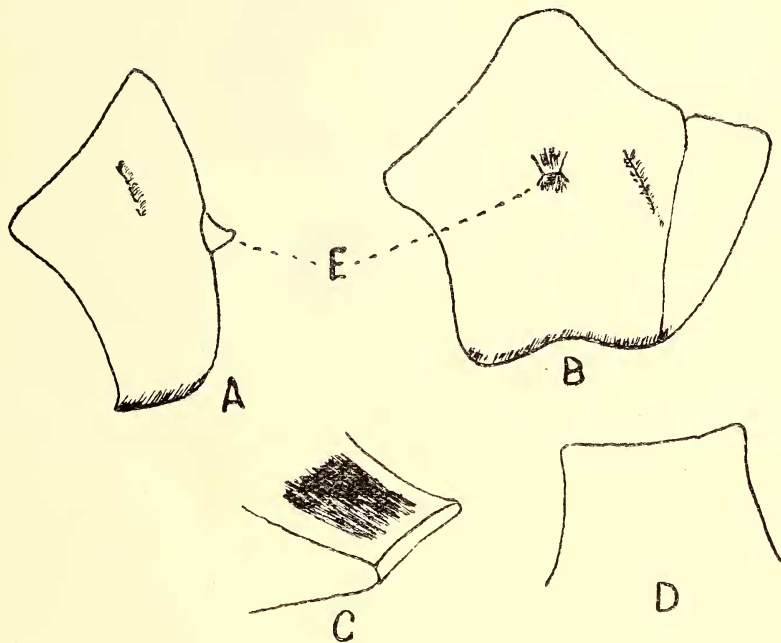


Fig. 1.—Egg-tooth of *Crocodilus palustris*.

A. & B. lateral and front view of egg-tooth on the rostrum.
C. & D. outline of egg-tooth.

Breeding.—Crocodiles breed regularly in the municipal lakes in Salsette Island. On the 20th April 1940 Mr. Humayun Ali gave me three eggs which had been taken about a week previously. These eggs were fairly new. On the 3rd May 1939 Mr. Ali brought me two specimens shot by him in the Powai Lake, Salsette. One measured 6 ft. 4 in., the other 5 ft. 4 in., both females. Dissection clearly showed that the former was just entering on the breeding season. The ovaries were considerably enlarged and contained some large ova, while the oviducts had become considerably distended and elongated, obvious indications that the animal was about to breed. The other, on the other hand, showed no signs of genital activity; the ovaries and oviducts were small and undeveloped (Pl. II). On the 13 June (1940) I shot two specimens, one a female, measuring 6 ft. 5½ in., and the other a male 4 ft. 9 in. Examination of the genitals indicated that the female had laid eggs some time back. The ovaries were undergoing resorption and contained no large ova. The oviducts, though still considerably enlarged, were now contracting. The genitals of the male were still immature. Does this then give us the approximate size at which the females of this species reach sexual maturity?



Fig. 2.—Copulatory organ of *Crocodilus palustris* Lesson.

Growth.—Gadow¹ referring to the age at which crocodiles become sexually mature writes: 'They are capable of propagation long before they are anything like half-grown, may be at the age of little more than ten years'. If this observation is correct, and if we accept the average annual growth (*Fauna*, p. 35), a sexually mature animal should measure approximately 100 inches (=8 ft. 4 in). In the present instance the animal is only 6 ft. 4 in., estimating its age by the same standard of growth, it would be only 7½ years

¹ *Cam. Nat. Hist. Series* (Amphibia and Reptilia) p. 448.



Photo: C. McCam.

A gravid Pond Turtle [*Lissemys punctata granosa* (Schoeff.)]
E. eggs; Re. Ruptured eggs; Od. Oviduct.

old. However, with reptiles, I think, it is perhaps better to arrive at the size at which they breed rather than place any reliance on age.

The very young generally leave the lakes and live in the neighbouring pools and streams during the rains, but return to the lakes when the water in the surrounding country dries up.

Food.—In volume xxxviii, p. 409 of the *Journal* I referred to the diet of the Salsette Crocodiles. In Salsette these animals appear to feed largely on aquatic beetles, *Cybister* spp., *Hydrophyllus* spp., such fish as they can catch, and the giant water-bug, *Belastoma indica* Sep. et Serv. To this must be added numerous snails. The process of digestion devolves on numerous small stones, some of them as much as an inch in diameter, which are always present in the stomach. An examination of the stomach contents of the two animals shot on the 13 June revealed that the stomach of the larger one was empty except for a number of stones. In the smaller there was an entire carp (*Barbus chrysopoma* Cuv. & Val.) about 10 in. long, in a partially decomposed state and a complement of stones. The size of the stones apparently vary with the size of the animals. The larger beast contained stones some of which were slightly over an inch in diameter, while those in the stomach of the smaller, barely exceeding half an inch.

ORDER: TESTUDINES: Tortoises, Turtles and Terapins.

FAMILY: *Trionychidae*: Soft-shelled Turtles.

Lissemys punctata granosa (Schoepff.). The Pond Turtle.

During the rains both the adults and young of the Pond Turtle (*L. p. granosa*) often cover considerable distances at night moving from one tank to another. Though the gait on land is far from graceful, this animal can travel comparatively fast. Flooded fields are often halfway stops. The young appear in fields and small pools later in the season.

On the night of the 5th August 1937 my cook brought me a large female, which had wandered into our compound at Andheri, Salsette. The carapace measured 212×149 mm., plastron 200×160 mm. (The plastron was measured after its removal, flat.). The turtle was evidently on its way from one tank to another. The two closest tanks to my bungalow, one to the west and the other to the north, are about a mile and three-quarters of a mile respectively. This meant that the animal would have had to travel approximately two miles. When captured it was unhurt and showed no signs of injury. I placed it along with some other tortoises in a wire enclosure. Next morning, to my surprise, the animal was in a precarious condition, and it died a couple of hours later. On dissection it was found to be gravid. It contained ten eggs, the three largest of which had burst, the contents overflowing the body cavity. It had evidently climbed up the mesh of the enclosure in an effort to escape, and dropped down several times with this fatal result. Numerous other ova at various stages of development were present in the ovaries, the largest of these measuring 24 mm. in diameter. The oviducts were considerably dilated but contained no eggs.

Eggs.—This species is accredited with laying 10-12 eggs at one time, but there appears to be the possibility that further clutches are laid by the same individual at different intervals, as indicated by the presence of a 'surplus' number of eggs. This, however, is a mere surmise, because we know that in the case of birds 'surplus' ova are absorbed during the non-breeding season.

The eggs are spherical and hard-shelled. They are laid in soft mud not far below the surface. The time of deposition has not been definitely ascertained, but the newly hatched turtles appear late during the season. The eggs are presumably laid and hatched during the rains. On March 28, 1939 Rev. T. Williams of Balaghat District sent a couple of eggs of the Pond Turtle for identification. Referring to the circumstances under which they were found Rev. Williams wrote, 'A few days ago while having some earth dug out of the tank close to my bungalow a clutch of eight eggs was unearthed by the coolies.' The eggs seemed to be quite fresh as there were no signs of incubation or decomposition. One of the eggs measured 28 mm. across, the other was broken.

Growth.—Growth is, at first, fairly rapid, and newly hatched young are not seen after the rains. As the pools dry, the young wander to larger and more lasting expanses of water which only dry up in the hot weather or a little before, so that the aestivating period in many instances is not a long one. Turtles do not aestivate when water is perennial, and under such conditions are often seen basking on rocks and vegetation, but on the slightest suspicion of danger disappear into the water.

Food.—The food of this turtle consists mostly of frogs and water plants, in fact one may safely say it is omnivorous. In captivity the animals feed readily on raw meat and bread. The food is held in the mouth and torn to bits by the sharp claws. During the process, both forelegs are brought up together to bear upon the food, sometimes alternately. Though generally voracious feeders, they are able to survive considerable periods of starvation. One I had in captivity refused food for nearly two years after it had been captured. After this long period, the animal, which had been living in a water tank, died. Externally it showed barely any signs of its long fast, but when dissected it was surprising to find that it was 'full of water'! Most of the muscles had dwindled to shadows and the alimentary canal was but a thin membrane filled with water too! In passing, the following examples of reptiles surviving without food may be of interest. A Checkered Water-Snake [*Natrix piscator* (Linn.)] which went on hunger strike and kept at it, survived ten months. An Earth Boa [*Eryx johnii* (Boie)] went one better than his aquatic brother. The Boa was a good healthy specimen which had been in captivity a few years—perhaps two or three. It was kept fasting for eighteen months, at the end of which it was somewhat emaciated, but as the test had lasted long enough the animal was given small mice and rats. Gradually it returned to normal and lived for another three years.

General.—Not far from my bungalow a well was being dug on a site formally occupied by a water-tap. The surroundings were slushy. About six inches below the surface a pickaxe pierced the

carapace of a Pond Turtle which was aestivating there! This took place in the month of April.

The flesh of the Pond Turtle is eaten by the East Indians and Goans, and animals are often seen in the bazaars exposed for sale.

ORDER : SQUAMATA.

SUBORDER : SAURIA.

FAMILY. *Gekkonidae* : The Geckos.

This group of lizards is perhaps the most familiar of all in India, some of the species are found in almost every Indian household and there are numerous quaint superstitious beliefs attending to them. Geckoes are commonly referred to as Fly-catchers or House-lizards—general terms with neither generic nor specific value. House-lizards in different districts are not always the same, while many species found in houses are also found far from habitations on trees and rocks.

Poisonous Geckoes.—In India many geckoes are regarded as poisonous. Some are even said to be identical with the mythical *Bis-cobra*. Not only their bite, but mere contact with their excretions is believed to be attended with fatal results. The truth is that if geckoes were in any way poisonous this paper would not have been written. Nevertheless, like all superstitions the *Poisonous Gecko* will die hard. Owing to these beliefs, geckoes are often killed. On the contrary, they should be encouraged in the house, as without either injury to persons or property they feed on insects many of which are harmful.

Eggs.—Usually only two eggs are laid at a time. These are slightly agglutinated together and to the surface they are laid on. In shape they are generally spherical and are covered with a fragile, calcareous shell. The size varies greatly from species to species and there is also a slight difference between those laid by individuals of the same species. The presence of smaller eggs in the ovary together with the developed pair, suggests that perhaps more than one clutch is laid by the same individual at different intervals. This may explain the presence of half-developed eggs in *Hemidactylus brooki* obtained on the 19th May by which time the general breeding season is nearing its close (Salsette).

Egg-tooth.—The rupture of the egg in geckoes may sometimes be described as 'circumscissile' (i.e. splitting along the equatorial line), but this is not always true, the shell more often breaks up irregularly. Referring to this Dr. Malcolm Smith¹ writes:—

'For the rupture of the shell the embryo is provided with a sharp calcareous egg-tooth at the extreme tip of the mouth. This is shed shortly after birth. In the Geckoes the tooth is double, but in all lizards, so far as is known, it is single.'

Mr. Mahendra² observes that there is no egg-tooth in the case of *H. flaviviridis*. My observations agree with those of Dr. Smith, viz., the egg-tooth is present and is double. The egg-tooth in geckoes is composed of two pear-shaped bodies which

¹ *F. B. Ind.* (Reptilia), vol. ii, p. 5, 2nd edn. (1935).

² *Proc. Ind. Ac. Sc.*, vol. iv (1936).

only protrude *very* slightly from under the upper 'lip'. If casually looked for they are barely visible, but if the mouth of a newly hatched young is examined, the two bodies are clearly seen. A pocket lens is not always sufficient to verify this point definitely.

Territorial rights.—Territorial rights are preserved at all seasons, but when food is abundant, particularly in the neighbourhood of lights, several lizards may be seen feeding in close proximity. During the breeding season in some cases I have observed a certain grouping of individuals within definite limits. Intruders are vigorously chased out of the area. The same diurnal retreat is occupied day after day, and unless the animal is frequently disturbed it will not change its place.

Colour-markings. Colour in geckoes, as with many other lizards, I have found to be a very unreliable character, and accordingly, from a diagnostic point of view, has little, if any, importance. There may be 'definite' markings, often seen in preserved specimens, and certain colour characteristics in the young, but in life these markings may or may not be present. Perhaps an exception to this 'rule' is seen in *H. maculatus*. It has very characteristic markings, both in life and in the preserved state. Here again the markings tend to disappear when the animal becomes very dark in general tone; the blotches merge into the surrounding hue, but when the lighter tones are assumed the markings stand out very prominently. *H. maculatus* does not appear to be able to dim the series of blotches to any great extent. Whether by day or by night, I have always found that Hemidactyls simulate the colouring of the surface they are on at the time. Colour change is imperceptibly gradual.

Fragility of Tail. The fragility of the tail in geckoes is well known. In the first place, the tail is used (in some species) as a store for reserve food material. Well-fed lizards develop a thick basal portion which in some species becomes annulated, but generally, after the 'winter sleep' is very lean. In the second, it is used as an evasive device, when detached, forming a distraction to the enemy as it actively wriggles about for quite a long time after being severed, while the lizard itself makes its escape—a tail for a life! There is a limit to the point at which a tail may be detached. In males the last point of detachment is usually one segment below the termination of the pockets of the hemipenes, but in females it is a little higher up. Generally it is about 2.3 segments below its union with the body. The tail is soon rejuvenated and may become as long as the original, but the scaling and colouration is quite different from the original. Injury to the original may result in bifurcation at the point of injury, but at times two or even three new tails may be formed at the point of severance. By injection of a fluid into a fresh tail I was able to break it up at various points.

Eyes.—The dilation of the pupil appears to be controlled by the activity of the animal. Even in bright lamp-light the pupils remain wide open or but slightly closed, the eyes appearing quite black, instead of having the characteristic slit. A similar condition I have observed in the Chunam Frog (*Rhacophorus maculatus*).

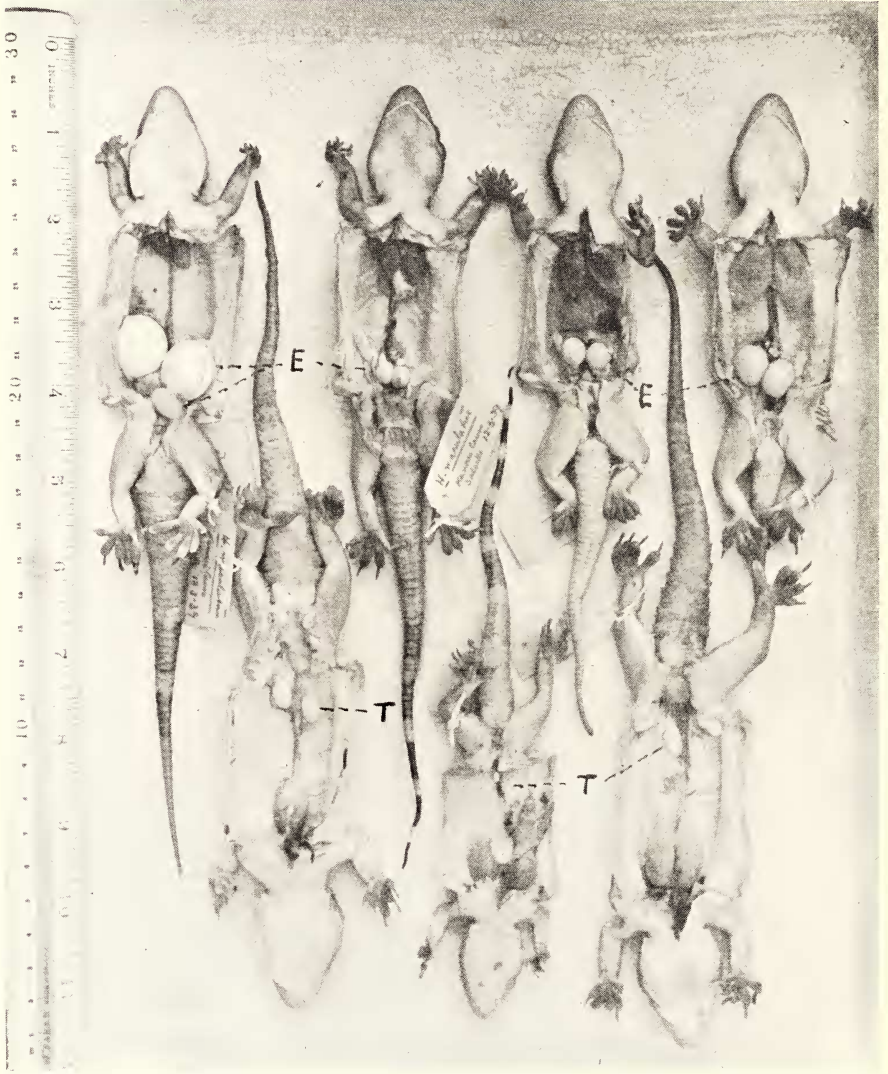


Photo : C. McCann.

The Rock Gecko (*Hemidactylus maculatus* Smith).
(Top row females; bottom row males).

Hemidactylus maculatus Smith. The Rock Gecko.

This gecko, one of the largest Indian Hemidactyls, shows a predilection for rough surfaces and is generally found in caves and rock crevices. It is common in the Kanari Caves, Salsette, but I have not observed it elsewhere in the island. At Panchgani (4,000 ft.), where the majority of the houses are built of blocks of laterite, this lizard is the common 'House Gecko', living chiefly on the unsurfaced exteriors of the buildings, but it also frequents the internal walls, particularly during the rains. During the day it retires into cracks or under the roofs.

At Panchgani, on two occasions only, I have found this lizard on trees; once an immature one, on the stem of a Silver Oak among Ivy quite close to a bungalow; and another on the 'fluted' stem of a *Ficus* near a street lamp. Perhaps the more abundant food, attracted by the light, occasioned the 'unusual' situation, though in the case of the former instance no light was near the tree.

Breeding season.—In Salsette, the general breeding season coincides with that of the other species present in the area, i.e. between February and April. The sexes appear to live together. In the Kanari caves, Mr. H. Ali and I collected them in March (1939), generally in couples; however, in one cave there were three females together and in another a single immature male. Immaturity appears to be outwardly indicated by the strong, very characteristic banding of the terminal third of the tail; but a rejuvenated tail does not show the markings. The young born in one year are just a little smaller than full adults at the next breeding season. Evidently they do not breed till the second season after birth.

During the Easter holidays of 1939 (9-13th April) I visited Panchgani with the express purpose of collecting further specimens in breeding condition. Having secured *H. maculatus* in full breeding condition in Salsette, I expected to find the Panchgani individuals in much the same condition, but dissection soon dispelled this notion. The Panchgani lizards were just at the beginning of their breeding season. The reproductive organs in both sexes were small when compared with those of the Salsette specimens. This variation in the time of the breeding season may perhaps be explained by, (a) the altitude and consequently cooler nocturnal temperature; (b) the food supply, a very serious factor on the dry hills of the Deccan. If young were hatched before the rains they would obtain but little food. Therefore I am of the opinion that the Panchgani individuals breed later in the year. On the whole the Panchgani specimens were much more emaciated in appearance than the Salsette ones. A further point of interest which is coincident with the later breeding season, is that, at Panchgani immature (half-grown) individuals were far more common than in Salsette, this possibly is a result of later breeding and scantier food supply.

Eggs.—A pair caught in the Kanari Caves, on the 12th March (1939) were kept in a box. On the 20th two eggs measuring 19×16 mm. were laid. They were slightly glued to the surface, and proved to be sterile.

Measurements of *Hemidactylus maculatus* in millimeters.

Species	Locality	Date	Sex	Pores	Size of Testes	No. of Eggs	Size of Eggs	Snout to vent	Vent to tip of tail	Remarks
<i>Hemidactylus maculatus</i>	Kanari Caves, Salsette Isl.	12-3-1939	♀♀	...	...	*2+? 2+3	†11 19×15	104 109	62 (R) † 127	Smaller eggs 11×9. Larger eggs in oviduct.
Do.	Do.	do.	♀♀♀	...	...	2+1 2+2 ...	7 9 ...	108 102 116	124 (R) 91 (R) 124	Not dissected. Laid 2 eggs on 20-3-39 non-breeding male.
Do.	Do.	do.	♂♂♂♂	16+16 19+19 19+17 19+20	Imperfect 8×6 10×6	...	...	88 115 121 117	114 136 124 (R) 151	Not dissected.
Do.	Panchgani	Easter 1939	♂♂♂♂	19+19 18+19 19+19 19+19 18+19	5×2 4×2 4.5×2	...	...	108 104 111 107.5 74	71 (R) 58 (R) 104 (R) 103 (R) 97	Not dissected.
Do.	Do.	do.	♀♀♀♀	...	...	...	...	70 81 80.5 64 76 77	92 107 99 80 79 (R) 99	Not dissected. Not dissected F. P. obscure.
Do.	Do.	do.	♀♀♀♀♀♀	...	...	...	...	101 100 111 97	91 (R) 99 (R) 117 (R) 87 (R)	Not dissected.
Do.	Do.	do.	♀♀♀♀♀♀	...	...	0+8 0+8	3 mm. Small	...	...	...

Do.	...	do.	♂	...	...	0+12	3	113	113 (R)	
Do.	...	do.	♂	...	...	0+7(?)	3	118	104 (R)	
Do.	...	do.	♂	...	...	0+8	3 mm.	112	74 (R)	
Do.	...	do.	♂	...	...	0+11	3	108	95 (R)	
Do.	...	do.	♂	...	...	...	...	106	91 (R)	
Do.	...	do.	♂	...	18+18	...	...	104	105 (R)	
Do.	...	do.	♂	...	...	...	...	102	117 (R)	
Do.	...	do.	♂	...	...	...	...	110	87 (R)	
Do.	...	do.	♂	...	...	...	...	108	102 (R)	
Do.	...	do.	♂	...	...	...	...	92	...	
Do.	...	do.	♂	...	...	...	...	91	...	
Do.	...	Kanari Caves, Salsette Isl. ...	♀	...	...	6	Small	115	114 (R)	Genitals under- going reduction (resorption). Not dissected.
Do.	...	do.	♂	17+16	...	...	...	104	112 (R)	Genitals reduced.
Do.	...	do.	♂	19+18	Small	...	...	106	88 (R)	Juv. genital very reduced.
Do.	...	do.	♂	17+17	Do.	...	...	92	106	

* The first figure indicates the number of maturing eggs, the second the smaller eggs.
 † A single figure indicates the eggs are spherical and still in the body cavity.
 ‡ R = rejuvenated.

Measurements of *Hemidactylus maculatus* in millimeters.

Species	Locality	Date	Sex	Pores	Size of Testes	No. of Eggs	Size of Eggs	Snout to vent	Vent to tip of tail	Remarks
<i>Hemidactylus maculatus</i>	Kanari Caves, Salsette Isl.	12-3-1939	♂	...	...	*2+?	†11	104	62 (R) ‡	
Do.	Do.	do.	♂	...	...	2+3	19 × 15	109	127	Smaller eggs 11 × 9. Larger eggs in oviduct.
Do.	Do.	do.	♂	...	...	2+1	7	108	124 (R)	
Do.	Do.	do.	♂	...	...	2+2	9	102	91 (R)	
Do.	Do.	do.	♂	...	...	...	...	116	124	Not dissected. Laid 2 eggs on 20-3-39
Do.	Do.	do.	♂	16+16	Imperfect	...	...	88	114	non-breeding male.
Do.	Do.	do.	♂	19+19	8 × 6	...	...	115	136	
Do.	Do.	do.	♂	19+17	10 × 6	...	...	121	124 (R)	
Do.	Do.	do.	♂	19+20	...	...	...	117	151	Not dissected.
Do.	Panchgani	Easter 1939	♂	19+19	5 × 2	...	...	108	71 (R)	
Do.	Do.	do.	♂	18+19	4 × 2	...	...	104	58 (R)	
Do.	Do.	do.	♂	19+19	4.5 × 2	...	...	111	104 (R)	
Do.	Do.	do.	♂	19+19	...	...	...	107.5	103 (R)	Not dissected.
Do.	Do.	do.	♂	18+19	...	...	...	74	97	Not dissected F. P. obscure.
Do.	Do.	do.	♂	...	...	...	...	70	92	Not dissected.
Do.	Do.	do.	♂	...	...	...	...	81	107	do.
Do.	Do.	do.	♂	...	...	...	...	80.5	99	do.
Do.	Do.	do.	♂	...	...	...	...	64	80	do.
Do.	Do.	do.	♂	...	...	...	...	76	79 (R)	do.
Do.	Do.	do.	♂	...	...	...	...	77	99	do.
Do.	Do.	do.	♂	...	...	...	...	101	91 (R)	do.
Do.	Do.	do.	♂	...	...	...	...	100	99 (R)	do.
Do.	Do.	do.	♂	...	...	0+8	3 mm.	111	117 (R)	do.
Do.	Do.	do.	♂	...	...	0+8	Small	97	87 (R)	do.
Do.	Do.	do.	♂	...	...	0+12	3	113	115 (R)	
Do.	Do.	do.	♂	...	...	0+7(?)	3	118	104 (R)	
Do.	Do.	do.	♂	...	...	0+8	3 mm.	112	74 (R)	
Do.	Do.	do.	♂	...	...	0+11	3	208	95 (R)	
Do.	Do.	do.	♂	...	...	...	...	106	91 (R)	
Do.	Do.	do.	♂	18+18	...	...	...	104	105 (R)	
Do.	Do.	do.	♂	...	...	...	...	102	117 (R)	
Do.	Do.	do.	♂	...	...	...	...	110	87 (R)	
Do.	Do.	do.	♂	...	...	...	...	108	102 (R)	
Do.	Do.	do.	♂	...	...	...	...	92	...	
Do.	Do.	do.	♂	...	...	...	...	91	111	
Do.	Kanari Caves, Salsette Isl.	8-6-1939	♂	...	...	6	Small	115	114 (R)	Genitals undergoing reduction (resorption). Not dissected.
Do.	Do.	do.	♂	17+16	...	...	...	104	112 (R)	Genitals reduced
Do.	Do.	do.	♂	19+18	Small	...	...	106	88 (R)	Juv. genital very reduced.
Do.	Do.	do.	♂	17+17	Do.	...	...	92	106	

* The first figure indicates the number of maturing eggs, the second the smaller eggs.

† A single figure indicates the eggs are spherical and still in the body cavity.

‡ R = rejuvenated.

Measurements of *Hemidactylus* spp. in millimeters.

Species	Locality	Date	Sex	No. of Pores	Size of Testes	No. of Eggs	Size of Eggs	Head & Body	Tail	Remarks
<i>Hemidactylus brooki</i>	Andheri, Salsette Isl. ...	6-2-39	♀	...	...	2+3	8.5 × 6.5	58	58.5 (R)	
	Do. ...	5-2-39	♀	...	...	2+3	10 × 6	55	55 (R)	
	Do. ...	17-2-39	♀	...	...	?	Small	53	46 (R)	
	Do. ...	5-2-39	♀	...	...	2+2	9.5 × 8	50	50 (R)	
	Do. ...	6-2-39	♀	...	...	2+3	10 × 7	48.5	50 (R)	
	Do. ...	5-2-39	♀	...	...	2+3	9 × 6	51	54 (R)	
	Do. ...	6-2-39	♀	...	...	2+7	9.5 × 7	50	54 (R)	
	Do. ...	29-1-39	♀	...	...	1+5	10 × 8	55.5	lost	
	Do. ...	6-2-39	♀	...	...	2+2	10 × 7.5	52	44.5 (R)	
	Do. ...	19-5-38	♀	...	...	2+2(?)	6	lost	lost	
	Do. ...	6-2-39	♀	...	...	2+6	4	51	58 (R)	
	Do. ...	5-2-39	♀	...	...	2+4	less than 4	55	53 (R)	
	Do. ...	6-2-39	♀	...	...	2+4	...	45	45 (R)	
	Do. ...	6-2-39	♀	...	...	2+4	...	48	53 (R)	
	Do. ...	5-2-39	♂	...	6	7 × 4	...	54.5	41 (R)	
	Do. ...	17-2-39	♂	...	7+5	7.5 × 4.5	...	55	50 (R)	
	Do. ...	6-2-39	♂	...	13+13	9 × 4	...	54	59	
	Do. ...	16-4-39	♂	...	7+8	7 × 4.5	...	57	59	Testes spent.
	Do. ...	16-4-39	♀	...	7+8	5 × 2	0+5	Small	39 (R)	Caught in March; laid 2 eggs on 3 April.
	Do.	Do. ...	5-2-39	♂	6+6	8 × 4	58	56 (R)
Do. ...		9-3-39	♀	...	...	2+4	6	55	?	
Do. ...		Easter 1939	♀	...	...	2+?	Large	53	Broken	
Do. ...		5-2-39	♂	14+15	6 × 3.5	...	...	52.5	40 (R)	Laid 2 eggs on 3 April; bottled 16-4-39. Eggs hatched on 15th and 16th May.
Do. ...		17-2-39	♂	15+14	6 × 2.5	...	...	46	52	
<i>Hemidactylus trenatus</i>	Do. ...	31-3-39	♂	...	...	...	...	41.5	20.5 (R)	
	Do. ...		♂	...	...	...	...

Measurements of *Hemidactylus* spp. in millimeters.

Species	Locality	Date	Sex	No. of Pores	Size of Testes	No. of Eggs	Size of Eggs	Head & Body	Tail	Remarks
<i>Hemidactylus frenatus</i>	Andheri, Salsette Isl. ...	...	?	...	...	...	...	17.5	14	Egg laid 3 April; hatched out on 16-5-39.
<i>Hemidactylus flaviviridis</i>	Andheri, Salsette Isl. ...	5-2-1939	♀	...	...	2+6	4	77.5	85	
Do.	Do.	Do.	♀	...	...	2+4	4	75	52 (R)	
Do.	Do.	17-2-1939	♀	...	...	2+?	9	79	65 (R)	
Do.	Do.	13-5-1938	♀	...	...	None	...	85	96.5	
Do.	Do.	17-2-1939	♀	...	...	2+4	9	83	105	
Do.	Do.	14-5-1938	♀	...	...	None	...	81	77 (R)	Tail bifid.
Do.	Do.	6-2-1939	♀	...	...	2+7	7	84	79.5	Tail trifid, 3 eggs maturing together.
Do.	Do.	20-5-1938	♂	7+6	Not developed	...	...	83	71.5 (R)	
Do.	Do.	5-2-1939	♂	7+7	7×4.5	...	...	65	61 (R)	
Do.	Do.	15-4-1939	♀ (?)	...	...	...	...	30.5	32	A recent hatching.
Do.	Do.	9-3-1939	♂	6+6	6×4	...	...	54	70.5	
Do.	Do.	Do.	♂	6+6	9×4.5	...	...	88	58 (R)	
Do.	Do.	16-4-1939	♂	7+6	5×2	...	...	61	97	Testes exhausted.
Do.	Do.	Do.	♀	...	...	2+4	11×8	74	93	
Do.	Do.	Do.	♀	...	...	0+7	Small	75	39 (R)	
Do.	Do.	17-4-1939	(?)	...	...	0+5	Do.	76	52 (R)	
Do.	Do.	28-4-1939	(?)	...	...	...	...	30	31	
Do.	Do.	...	(?)	...	...	...	...	31	35	Egg laid 1-4-1939; hatched 24-5-1939. Bottled immediately on hatching.
Do.	Do.	...	(?)	...	...	...	...	29	32	

